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Susan H. Stewart and Marilou S. Phillips, Compilers
Langley Research Center • Hampton, Virginia

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Foreword

This report contains a listing of the NASA Langley Research Center's scientific and technical research output for C.Y. 1996.

The intent of this report is to provide a greater awareness of the broad scope of results and the importance of the research and development work conducted by scientists and engineers at Langley. This current awareness is mandated by the National Aeronautics and Space Act of 1958, which provides for the widest practical dissemination of NASA research.

During C.Y. 1996, Langley's contributions to NASA and non-NASA literature included 84 NASA Formal Reports, 5 High-Numbered Conference Publications, 82 High-Numbered Technical Memorandums, 202 Contractor Reports, 273 Journal Articles and Other Publications, 412 Meeting Presentations, 38 Technical Talks, 5 Computer Programs, 8 Tech Briefs, and 34 Patents.



Ronald L. Baker
Assistant Chief, Information Systems
and Services Division

Introduction

The NASA Langley Research Center is one of the Nation's leading laboratories for research and development in the sciences of aeronautics and space technology. Langley conducts basic and applied research in the areas of Airframe Systems, Aerodynamics, Atmospheric Science, and Structures and Materials.

This publication is a bibliography of Langley's scientific and technical research output for 1996 which is processed through the Center's Information Systems and Services Division, an integral part of NASA's Agency-wide Scientific and Technical Information (STI) system. The results of Langley's research are disseminated in a variety of NASA and non-NASA scientific and technical media and information systems. Details of the availability of the research references in this document are found in the section, "Availability," on page vii.

Many Langley reports are available electronically on the Langley Technical Report Server (LTRS) at <http://techreports.larc.nasa.gov/ltrs/ltrs.html> or the Institute for Computer Applications in Science and Engineering (ICASE) Technical Report Server (ITRS) at <http://www.icas.edu/docs/library/itrs.html> via the World Wide Web (WWW). The relative Uniform Resource Locators are noted below citations for reports available electronically.

The citations are grouped by the Scientific and Technical Aerospace Reports (STAR) subject categories and listed alphabetically by author or innovator. The Langley organization to which the senior author or innovator is assigned and the Research and Technology Objectives and Plans (RTOP) number are noted below citations when appropriate and included in the indexes.

Computer Programs cited are those which are listed on the Langley Software Server (LSS) on the WWW at <http://www.larc.nasa.gov/LSS>.

The NASA Tech Briefs cited were published in 1996 in "NASA Tech Briefs," a journal for United States industry, entrepreneurs, and academia. Subscriptions to this journal are available through the publisher, NASA Tech Briefs, 317 Madison Avenue, New York, New York 10017-5391, or on the WWW at <http://www.keds.com/ntb/subscribe.html>.

Patents listed are those which were issued in 1996 and owned by Langley Research Center.

Publication of some journal articles was not known at press time for the 1995 issue of this document. These articles are therefore listed in the 1996 issue.

Availability

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Patent Application Specifications	NASA Center for AeroSpace Information (CASI) National Technical Information Service (NTIS)
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Scientific and Technical Publications

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- 1 Baize, D. G. (Compiler): 1995 NASA High-Speed Research Program Sonic Boom Workshop—Volume I. NASA CP-3335, July 1996, 393 p.
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- 2 Barrick, J. D.; Ritter, J. A.; Watson, C. E.; Wynkoop, M. W.; Quinn, J. K.; and Norfolk, D. R.: Calibration of NASA Turbulent Air Motion Measurement System. NASA TP-3610, December 1996, 29 p.
<ftp://techreports.larc.nasa.gov/pub/techreports/larc/96/NASA-96-tp3610.ps.Z>
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- 3 Gorton, S. A.; Meyers, J. F.; and Berry, J. D.: Laser Velocimetry and Doppler Global Velocimetry Measurements of Velocity Near the Empennage of a Small-Scale Helicopter Model. Presented at 20th Army Science Conference, June 24-27, 1996, Norfolk, Virginia. In Proceedings.
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- 30 Carlson, H. W.; McElroy, M. O.; Lessard, W. B.; and McCullers, L. A.: Improved Method for Prediction of Attainable Wing Leading-Edge Thrust. NASA TP-3557, April 1996, 63 p.
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- 42 Compton, W. B., III: Comparison of Turbulence Models for Nozzle-Afterbody Flows With Propulsive Jets. NASA TP-3592, September 1996, 117 p.
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- 43 Deere, K. A.; and Asbury, S. C.: An Experimental and Computational Investigation of a Translating Throat Single Expansion-Ramp Nozzle. Presented at 32nd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, July 1-3, 1996, Lake Buena Vista, Florida. AIAA Paper No. 96-2540.
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- 45 Everhart, J. L.: Calibration Improvements to Electronically-Scanned Pressure Systems and Preliminary Statistical Assessment. Presented at 19th AIAA Advanced Measurement and Ground Testing Technology Conference, June 17-20, 1996, New Orleans, Louisiana. AIAA Paper No. 96-2217.
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- 48** Frink, N. T.: Assessment of an Unstructured-Grid Method for Predicting 3-D Turbulent Viscous Flows. Presented at 34th AIAA Aerospace Sciences Meeting and Exhibit, January 15-18, 1996, Reno, Nevada. AIAA Paper No. 96-0292.
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- 49** Gatlin, G. M.; and McGhee, R. J.: Study of Semi-Span Model Testing Techniques. Presented at 14th AIAA Applied Aerodynamics Conference, June 17-20, 1996, New Orleans, Louisiana. AIAA Paper No. 96-2386.
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- 51** Gatski, T. B.: Prediction of Airfoil Characteristics With Higher Order Turbulence Models. NASA TM-110246, April 1996, 21 p.
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- 53** Green, L. L.; Newman, P. A.; and Haigler, K. J.: Applications of Automatic Differentiation in Multidisciplinary Design Optimization. Presented at Second International SIAM Workshop on Computational Differentiation, February 12-15, 1996, Santa Fe, New Mexico.
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- 55** Hazlewood, R. N.: An Investigation of Cavity Vortex Generators in Supersonic Flow. (NCC1-172 University of Kansas Center for Research, Inc.) NASA CR-198202, February 1996, 127 p.
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- 58 Huebner, L. D.; Rock, K. E.; Volland, R. T.; and Wieting, A. R.: Calibration of the Langley 8-Foot High Temperature Tunnel for Hypersonic Airbreathing Propulsion Testing. Presented at 19th AIAA Advanced Measurement and Ground Testing Technology Conference, June 17-20, 1996, New Orleans, Louisiana. AIAA Paper No. 96-2197.
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